List of Contents

NUMBER 1

MATHEMATICS AND THE MICROCOMPUTER

E. Y. Rodin	vii	Foreword
B. A. Fusaro	1	Introduction Mathematics and the microcomputer
F. J. Hickernell and W. Proskurowski	3	Calculus Design of a calculus microcomputer laboratory
J. L. Van Iwaarden	25	Differential Equations The computer as a teaching tool in ordinary differential equations
R. E. Myers	33	Graphics Fundamental concepts of microcomputer graphics
G. Williams	43	Linear Algebra The microcomputer in linear algebra
L. B. Rall	53	Scientific Computing An introduction to the scientific computing language Pascal-SC
F. S. Gordon and S. P. Gordon	71	Statistics Microcomputer graphics for statistical education
	1	Software Survey Section Calculus Lab; Linear Algebra Computer Companion; Pascal-SC Compiler and Libraries; Computer Graphics Demonstration in Statistics and Probability
	VII	Softstrip® data strip containing the table of contents of this issue
		NUMBER 2
		NOWBER 2
	iii	Softstrip® data strip containing the table of contents of this issue
A. Gerasoulis and R. P. Srivastav	81	The stability of the Gauss-Chebyshev method for Cauchy singular integral equations
A. E. Ali	91	Mathematical modelling of side-looking radar imaging geometry and errors
J. He	119	Practical stability of discontinuous large-scale systems

G. Subramanian. 127 A circular cylinder in a flow field with parabolic velocity C. V. Raghava Rao and distribution—a numerical study K. Pramadavalli R. Pérez-Gómez 133 The four regular mosaics missing in The Alhambra P. L. Mills, S. Lai, 139 Comparison of solution methods for a mathematical M. P. Duduković and model of dilute solute mass transfer with chemical P. A. Ramachandran reaction on a nonuniform surface I Software Survey Section NUMBER 3 iii Softstrip® data strip containing the table of contents of this issue S. V. R. Rao 153 Micro-computer applications in environmental enginand K. F. Willis eering J. G. Reid 157 Normal functions of normal random variables D. J. Hand 161 A shrunken leaving-one-out estimator of error rate W. S. Yousif The modified alternating group explicit (MAGE) 169 and D. J. Evans algorithm for solving tridiagonal linear equations S. S. Al-Fedaghi 173 The two-row constraints realization problem A. Vanderbauwhede 185 Note on a paper by H. S. Qin U. Eckhardt 189 A Fourier method for initial value problems with mixed and M. G. El Sheikh boundary conditions A. de Palma, C. Lefèvre A dynamic model of peak period traffic flows and 201 and M. Ben-Akiva delays in a corridor W. S. Yousif 225 Application of the AGE algorithm to the SLOR and ADI and D. J. Evans methods 229 Book Reports I Software Survey Section NUMBER 4 iii Softstrip® data strip containing the table of contents of this issue A. W. Bojanczyk 233 A systolic algorithm for extended GCD computation and R. P. Brent D. Greenspan 239 Quasimolecular modeling of cavity flow

L. Mansfield	249	Finite element approximation of stationary interior viscous flow problems
L. F. Shampine	255	Interpolation for variable order, Runge-Kutta methods
C. Chiccoli, S. Lorenzutta and G. Maino	261	A numerical method for generalized exponential integrals
J. W. Seaman Jr, D. W. Turner and D. M. Young	269	Polyhedron graphs for displaying multivariate data
T. C. E. Cheng	279	Minimizing the maximum deviation of job completion time about a common due-date
V. Pan	285	Algebraic complexity of computing polynomial zeros
	1	Software Survey Section

NUMBER 5

OCEAN ACOUSTIC PROPAGATION BY FINITE DIFFERENCE METHODS

Foreword by E. Y. Rodin	vii
Preface	ix
Chapter 1: Introduction	305
Chapter 2: Ocean Acoustic Wave Propagation Problems	309
2.1. The governing wave equation	309
2.2. The parabolic approximation	311
Chapter 3: Finite Difference Schemes	317
3.1. Formulation	318
3.2. Consistency	320
3.3. Stability	323
3.4. Convergence	324
Chapter 4: Initial and Boundary Conditions	327
4.1. The initial field	327
4.2. A Neumann bottom boundary condition	328
4.3. Interface treatment	330
4.4. Discussion	337
Chapter 5: Range Step Size Analysis	341
5.1. The heat equation model	341
5.2. An extension of the model heat equation	343
5.3. The PE	346

6.2. IFD implementation 3			1 3 3 7
Chapter 7: Applicable Solution Methods Other Than the Implicit Finite Difference Scheme 7.1. The split-step Fourier algorithm 7.2. The numerical ordinary differential equation method 7.3. A stable explicit finite difference scheme 361 362			1
Chapter 8: Representative Test Examples 8.1. Burgers' equation 8.2. Range-independent problems 8.3. A range-dependent problem 8.4. Wide-angle propagation			9 4 6 8
Chapter 9: Listing of Computer	er Cod	des 38	5
Reference Citation Index 42			1
Subject Index 423			3
Softstrip® data strip containin	g the	table of contents of this issue	ï
		NUMBER 6	
	iii	Softstrip® data strip containing the table of conten of this issue	ts
B. Codenotti and P. Favati	425	New techniques for the solution of linear systems to iterative methods	Э
M. de la Sen	429	A discrete stable robust MRAC design with an extradaptation parameter	ra
X. Ying and I. N. Katz	437	A uniform formulation for the calculation of stressingularities in the plane elasticity of a wedge composed of multiple isotropic materials	-
E. Greenwell Yanik	459	A discrete maximum principle for collocation method	ds
H. P. Singh, D. D. Tripathi and R. B. Mishra	465	The structure of magnetized rotating polytropes	
L. S. Shieh, S. Ganesan and J. M. Navarro	471	Transformations of a class of time-varying multivariable control systems to block companion form	
M. S. Petković	479	Some interval iterations for finding a zero of polynomial with error bounds	a
G. Adomian	497	Semilinear wave equations	

501 Book Reports

I Software Survey Section

NUMBER 7

	iii	Softstrip® data strip containing the table of contents of this issue
R. Seydel	505	New methods for calculating the stability of periodic solutions
H. P. Singh, D. D. Tripathi and R. B. Mishra	511	Finite-difference methods for boundary value prob- lems at high Grashof number
R. P. Agarwal and R. C. Gupta	519	Linear methods for differential equations of Sobolev type
CA. Wang	527	Multiple numerical solutions of buoyancy induced flows of a vertical ice wall melting in saturated porous media
C. S. Yang, J. F. Wang, J. Y. Lee and F. T. Boesch	541	Reliability properties of the hypercube network
H. Brunner	549	Implicit Runge-Kutta-Nyström methods for general second-order Volterra integro-differential equations
W. W. Hager	561	Bidiagonalization and diagonalization
D. J. Hand and G. M. Fitzmaurice	573	Error rate estimation by mixture decomposition
	1	Software Survey Section
		NUMBER 8
	iii	Softstrip® data strip containing the table of contents

	iii	Softstrip® data strip containing the table of contents of this issue
T. C. E. Cheng	579	Optimal total-work-content-power due-date determination and sequencing
V. A. Ubhaya	583	An $O(n)$ algorithm for least squares quasi-convex approximation
V. Pan	591	Sequential and parallel complexity of approximate evaluation of polynomial zeros
H. P. Singh, D. D. Tripathi and R. B. Mishra	623	Structure of a point heat source near an interface

L. S. Shieh, S. R. Lian, C. B. Park and N. P. Coleman		Fast and stable recursive algorithms for continuous- time and discrete-time model conversions
K. Ranai	645	Simulation performance of information placement strategies
C. V. Emin and G. Adomian	655	Letters to the Editor
	1	Software Survey Section
		NUMBERS 9-12
MATH	EMAT	TICAL MODELS IN MEDICINE
		VOLUME 2
	vii	About this issue
	ix	Author's guidelines
M. Witten	хi	Mathematical modeling and computers in medicine: Editor's remarks
Review Article		
J. R. Lumb	657	Lymphocyte differentiation, repertoire development and migration: the need for mathematical models
D. R. Rigney	699	Inherited rate model of the cell cycle: kinetics of related cells, epi-genetics of ribosomal DNA transcription and the evaluation of cancer-therapy fractionation schedules and doses
H. Franke, H. E. Wichmann, C. S. Potten and L. Todd	741	Modelling of the influence of ³ HTdR on cell kinetics in mouse epidermis
F. W. Schultz, A. C. M. Martens and A. Hagenbeek	751	Computer simulation of the progression of an acute myelocytic leukemia in the Brown Norway rat
A. Bertuzzi, A. Gandolfi, A. Germani, R. Vitelli, G. Badaracco and G. Stara	763 ce	Study of cell kinetics by computer-analyzed flow cytometric histograms
C. Rossi	771	General software for the analysis of cytofluorimetric data by E-M methods
W. Düchting and Th. Vogelsaenger	783	An approach of modelling and simulating the spread of heterogeneous tumor cells in a three-dimensional tissue segment
S. Gaglio, M. Genovesi, C. Ruggiero, G. Spinelli, C. Nicolini, G. Bonadonna and P. Valagussa	793	Expert systems for cancer chemotherapy

P. Periti 803 A system theoretical approach to the optimization of cancer treatment I. Kramer 817 A dynamical model estimating the upper and lower bounds of the infectivity of the HTLV-III/LAV virus for the male bisexual and homosexual population in the absence of preventative measures A. G. Shannon, J. H. Clarke 829 Contingency relations for infectious diseases and L. J. Hills C. P. Tsokos and 835 A probabilistic model for breast cancer survival data M. N. Oğuztöreli J. Eller, I. Györi, M. Zöllei Modelling thrombopoiesis regulation--- I. Model description 841 and F. Krizsa and simulation results I. Györi and J. Eller 849 Modelling thrombopoiesis regulation—II. Mathematical investigation of the model W. D. Wosilait, R. H. Luecke 861 Numerical simulations of the infusion of Adriamycin using and M. P. Ryan a physiological flow model J. M. Robins and 869 The foundations of confounding in epidemiology H. Morgenstern J. M. Robins 917 Errata to "A new approach to causal inference in mortality studies with a sustained exposure period-application to control of the healthy worker survivor effect" J. M. Robins 923 Addendum to "A new approach to causal inference in mortality studies with a sustained exposure periodapplication to control of the healthy worker survivor effect" Book Reviews G. Stefanek 947 The Handbook of Artificial Intelligence, Vol. 1. By A. Barr and E. A. Feigenbaum K. M. Walsh 947 Microcomputers and Laboratory Instruments. By D. J. Malcolme-Lawes Z. Grossman 948 System Theory in Immunology (Lecture Notes in Biomathematics, Vol. 32). Edited by S. Levin J. H. Graham 948 Robot Analysis and Control. By Haruhiko Asada and Jean-Jacque E. Slotine C. O'Connor 949 Image Analysis and Mathematical Morphology. By J. Serra K. Kamel 950 Proceedings ISMIII'82 First IEEE Computer Society International Symposium on Medical Imaging and Image Interpretation R. A. Greenberg 950 The Design and Analysis of Clinical Experiments. By Joseph L. Fleiss

- C. O'Connor

 951 An Introduction to Multivariate Statistical Analysis, 2nd edn.
 By T. W. Anderson

 951 Advanced Graphics with IBM Personal Computer. By I. O.
- E. Nicolau 952 Technical, Technological and Social Implications of Bio-
- engineering (Implicații tehnice, țehnologice și sociale ale bioingineriei). By E. Niculescu-Mizil

Software Reviews

- M. Witten 955 MATH ADVANTAGE
- G. Conway 956 FASTBACK
- G. Conway

 957 LIGHTNING

 I Softstrip® data strip containing the table of contents of this

